

Qwest Foundation for Education Grant Application 2007-2008

Abstract

I am proposing implementation of GPS (Global Positioning Systems) as another learning tool available to my students. I would like to buy 32 units for use in my 5th grade class. I have experienced first-hand the positive effect this can have on student achievement through the VISIONES project. Students who used the GPS units were engaged and motivated to use high level thinking skills. VISIONES was offered through a part of our NASA Explorer School status and provided me with both e-learning and face-to-face professional development that taught me how to use GPS and Global Information Systems (GIS). I learned how this technology can be used as a visualization tool to teach science, technology, and mathematics. In addition to the GPS Units, we need access to technology that will allow all of my students to analyze results and view programs at the same time. For this reason we are also requesting a CPS Chalkboard and an LCD projector. These items will allow me to teach from any point in the room and use the technology we already have, on a regular basis.

As described in the detailed project description below, these units can be used to provide practical experience as students work to gain proficiency in content standards. All activities that we engage in will be tied directly to our scientifically research based curriculum, as well as to the Idaho State Achievement Standards.

When students are engaged and excited about what they are learning, they will gain knowledge at a much faster rate. Carberry Intermediate School is currently on AYP alert for Students with Disabilities in both math and reading. I have found that these students in particular benefit from hands-on experiences that allow them see and do learning activities. It is my hope that by adding these tools to my classroom, I will be able to boost achievement across all subjects.

Current Use of Technology

How we use Technology

Students in my class have used technology in a broad variety of ways.

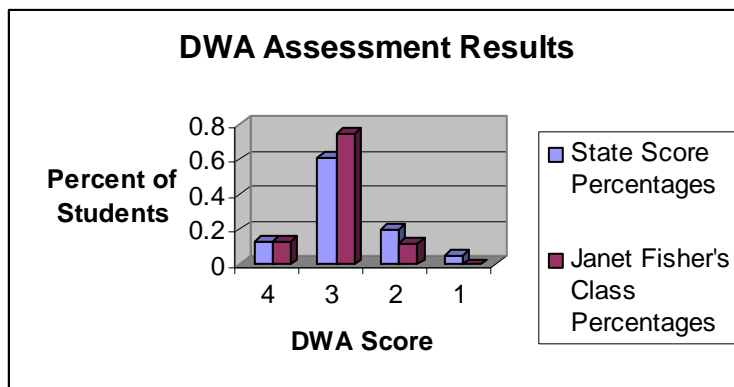
NASA resources are often utilized. Our entire student body was present at a downlink with the International Space Station last spring. We have a videoconferencing system that has been used for a number of interactive sessions. One of these was a live visit with Chris Van Allsburg, author of *Zathura*, and a NASA scientist. My class then participated in Fuel Your Imagination, in which students chose the best science fiction story written after the Van Allsburg conference and had it submitted in a nationwide contest. Another example of a videoconference was a visit with astronauts training off the Florida coast with the NEEMO (NASA Extreme Environment Mission Operations) project. Last year, two classes joined together to create a replica of Node 2, a new portion of the International Space Station as a part of a contest to name it. Two students spoke to Barbara Morgan and her shuttle crew last summer during the Idaho downlink.

Students have worked to develop essential skills in problem solving and mathematical communication through the interactive Fizz and Martina's Math Adventures software. Power Proofreading allows students to hone their ability to write correctly. This is one of many opportunities in which we use the Smartboard. Monster Exchange is a program designed to encourage the development of reading and writing skills while integrating Internet technology into the classroom curriculum. Journey North engaged students in a global study of seasonal change. I extensively use sites such as Brainpop, which provides educational animated movies for kids. Sodaplay is a creative site for interactive creations using masses and springs. Yearly, we use many of the available programs to learn the location of the states and their capitals. We review math facts, practice comprehension skills, and study the Periodic Table of the Elements online. Last year I videotaped student reports on elements. Reading ranges are determined and quizzes on books are taken on the computer through the Accelerated Reading program. Keyboarding is practiced. This fall, a number of my students communicate with me through my school website email.

Our participation in VISIONES, Visual Instruction Support for Inquiry-based Odysseys in the NASA Explorer Schools, was a project that got us excited about the use of GPS (Global Positioning Systems) units and how they relate to GIS (Global Information Systems).

Impact on Student Performance

The areas where my classes used technology most frequently included reading, language arts, and science. Both ISAT and DWA scores would indicate that there is a positive correlation between technology integration and achievement in my class. The charts below illustrate this.



ISAT Results-Spring 2007 Average Scale Score				
	Reading	Math	Language Usage	Science
State Average	213	218	213	206
School Average	214	216	214	208
Janet Fisher's Class Average	217	218	215	208

In addition to these , I find that when we use technology to engage students in their own learning there are virtually no student behavior problems in the classroom.

Emmett School District has the following demographics: 46% of students qualify for Free and Reduced Lunch, 5% of our students are English Language Learners and 11% are Students with Disabilities. The student population is 11% Hispanic, 2% other, and 87% White. Carberry Intermediate school's demographics fall in line with our district averages.

I always find that at-risk students are more engaged and able to keep up with class goals better when technology is integrated into the lesson. Technology is a great motivator. I have used templates for game shows such as Jeopardy and Who Wants to be a Millionaire to review geography, math facts and vocabulary. SmartBoard activities always engage students and make them want to answer the questions. Fizz and Martina's Math Adventures has a random team selector which keeps students rapt. Each year, I take numerous pictures of the students and then burn each of them a CD with music and other sound effects. They love this way of remembering the school year.

Proposed Use of Technology

If I had a wish for technology as it is used by my students, I would get technology into their hands much more often. GPS, or Global Positioning System, is a system of radio-emitting and receiving satellites used for determining positions on the earth. The orbiting satellites transmit signals that allow a GPS receiver anywhere on earth to calculate its own location through trilateration. The use of GPS units personalizes many of the concepts we try to teach in Science, Math and Social Studies, which in turn, ignites interest in the user. The enthusiasm we built during the VISIONES experience has been the driving force behind my desire to acquire GPS units for our students. GPS units can be excellent tools; their use is applicable to many

disciplines, including mathematics, geography, earth science, history and environmental studies. Geographic inquiry helps students and educators explore their world, from a local to global scale. The use of Geographic Information Systems fosters a connection with the community through the acquisition of data and maps and through field work.

Students will use handheld Global Positioning System units (GPS) to complete projects as outlined in the book Fun with GPS by Donald Cooke in addition to other activities included in our regular curriculum. All activities will be directly tied to the Idaho State Achievement Standards. For example students will:

- Attach a GPS unit to a class pet and allow it to roam the school facilities. Students will track latitude and longitudinal coordinates and create maps and graphs to display and obtain information. Idaho State Standard, Geography 5.22 2.1.1 to 5.22.2.1.3
- Students use GPS units and tape to mark latitude and longitudinal coordinates on a football field. Students will discuss distance between marked lines, ratios, and why the grid does not make perfect squares. Students are using their own playground to identify and plot points in the first quadrant on a coordinate grid. Idaho State Standard, Mathematics 5.M.4.3.1
- Students will track their steps through an entire day. They will make predictions about distance, location, and the direction of fellow students. Students will compare these variables across grade levels and/or classrooms and discuss why the predictions turned out to be true or false. Idaho State Standard, Mathematics 5.M.13.1 to 5.M.1.3.6
- Students will use GPS units to calculate the perimeter of buildings and objects on school grounds or within their homes. They will return to the classroom and create scaled drawings. Students will use rounding to obtain workable numbers for their scale projects. Idaho State Standard, Mathematics 5.M.2.1.2, 5.M.2.1.5
- Students will create their own hypothesis and experiments using the GPS units. Idaho State Standard Science 5.s.1.6.1 to 5.S.1.6.6

These are just a few of the activities that could be used to teach state standards and increase achievement by allowing students to learn via an inquiry based, hands-on method. In addition to the GPS units, my students would benefit from regular access to a CPS Chalkboard and LCD Projector. We will use this to display results on the screen, view charts and graphs, analyze data, and make predictions.

It is my hope that by adding these tools to my classroom, I will be able to boost achievement across all subjects.

Budget Narrative

Activity	Salaries	Benefits	Contractual Agreements	Materials and Supplies	Capital Objects
	100	200	300	400	500
Professionals who use the GPS systems will assist with training of both students and staff. Funds will pay for transportation and training.			\$500		
Supplies for GPS units including cables, rechargeable batteries, charger, and 2 subscriptions to Google Earth				\$2,000	
Garmin GPS Map76 Tracking Units. 32 units at \$200 each					\$6,400
1 CPS Chalkboard to display technology and facilitate whole-group, interactive activities					\$410
1 LCD Projector for use in conjunction with GPS Units and CPS Chalkboard.					\$500
Totals	\$0	\$0	\$500	\$2,000	\$7,310

Total Amount of Grant Request**\$9,810**